

**PATENT COOPERATION TREATY**

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**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 502331	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. <b>PCT/AU2004/000464</b>	International filing date (day/month/year) 8 April 2004	Priority date (day/month/year) 11 April 2003	
International Patent Classification (IPC) or national classification and IPC  Int. Cl. <sup>7</sup> H02J 7/00			
Applicant  COCHLEAR LIMITED et al			

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of sheets, as follows:</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or table related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>	
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>	

Date of submission of the demand 27 May 2004	Date of completion of the report 29 July 2005
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer  <b>DALE SIVER</b> Telephone No. (02) 6283 2196

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/AU2004/000464

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1 (b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
- ☒ the international application as originally filed/furnished
- ☐ the description:
- |        |  |
|--------|--|
| pages  | as originally filed/furnished                    |
| pages* | received by this Authority on with the letter of |
| pages* | received by this Authority on with the letter of |
- ☐ the claims:
- |        |   |
|--------|---|
| pages  | as originally filed/furnished                             |
| pages* | as amended (together with any statement) under Article 19 |
| pages* | received by this Authority on with the letter of          |
| pages* | received by this Authority on with the letter of          |
- ☐ the drawings:
- |        |  |
|--------|--|
| pages  | as originally filed/furnished                    |
| pages* | received by this Authority on with the letter of |
| pages* | received by this Authority on with the letter of |
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to the sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to the sequence listing (*specify*):

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/AU2004/000464

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims 1-33	YES
	Claims	NO
Inventive step (IS)	Claims 2-19,22-24,26-33	YES
	Claims 1,20,21,25	NO
Industrial applicability (IA)	Claims 1-33	YES
	Claims	NO

**2. Citations and explanations (Rule 70.7)**

- D1 US 6426628 (PALM et al.) 30 July 2002 and D5 US 5869970 (PALM et al.) 9 February 1999  
D2 WO 02060029 (COCHLEAR LTD.) 1 August 2002  
D3 WO 0069012 (EXONIX CORP.) 16 November 2000  
D4 US 5903764 (SHYR et al.) 11 May 1999  
D5 US 5869970 (PALM et al.) 9 February 1999

**Novelty (N)**

None of the citations explicitly discloses all of the features of the claims, when the citations are taken alone. The claims may be considered novel, although (see Box VIII) the claims are not fully supported by the description and lack clarity so this is open to interpretation.

**Inventive step (IS)**

D4 discloses a plurality of switch-drivers and a plurality of smart batteries. The batteries are selectively recharged by the smart battery selector. Use of either one or the other of two smart batteries is also explicitly disclosed. Separate switches connecting either of the batteries to the output (or load) are also explicitly disclosed (see figures). Claims 1 and 25 lack an inventive step when D4 is combined with common general knowledge in the art of electronics. There are minor (non-inventive) differences between D4 and the claim, for example D4 uses a plurality of smart batteries, as distinct from ordinary (non-smart) batteries, consequently the citation is considered a Y document. However D4 explicitly discloses a smart charger and a smart selector in conjunction with the smart battery. Furthermore D4 discloses a conversion means (AC/DC) for supplying the smart charger voltage from the supply voltage. It would be obvious that a "first conversion means for converting a supply voltage to a battery voltage to enable charging of one or more of the rechargeable batteries" (as recited in claim 1) is a technical equivalent to the arrangement of D4, since D4 allows selection of one or more of the batteries to be charged.

D4 is directed to a portable device and does not disclose that the system forms part of an "implantable device". Since the present application management system preferred embodiment is for an implantable device (eg. hearing aid) and since there are non-trivial problems to be overcome in adapting the system of D4 into an implantable device, Claims 20 and 21 do involve an inventive step when D4 is taken alone. Nevertheless D2 discloses a use for a plurality of batteries in an implantable hearing aid. When D2 is combined with D4, claims 20 and 21 lack an inventive step.

D1, D3 and D5 also disclose power management systems for implantable devices. Hence claims 20 and 21 lack an inventive step when any one of D1, D3 or D5 are combined with D4.

**Industrial applicability (IA)**

The application and claims have an industrial application.

**Box No. VIII    Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

1. Claims 1 and 25 are not fully supported by the description. There are two preferred embodiments (see figure 1 and figure 4). The first embodiment, see figure 1 with reference to the description page 8 line 32 to page 10 line 4 the control unit provides "**pseudo-simultaneous charging of all batteries**" and "**pseudo-simultaneous discharging of the batteries**". The second embodiment, see figure 4, with reference to the description page 10 lines 28 to page 11 line 14 is similar with respect to the pseudo simultaneous battery switching, except the first voltage converter is reused. Claims 1 and 25 do not match the description in function or purpose, which is required by PCT rules. The claims go beyond the disclosure and are considered speculative in nature.
2. Claim 1 and 25 are unclear as to whether the battery switches are connected simultaneously (or not) to either the charging means or the output circuit.

Even claim 4 that specifies that batteries are chosen, "**one at a time**" is still not entirely clear because the period of **time is not defined**. For example the time period may be understood to be long (e.g. until the battery is charged or discharged) or short (eg. for less than a second during the pseudo simultaneous or multiplexed switching time).

Such lack of clarity in most of the claims has resulted in an unclear scope of the monopoly intended.